IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

25/01/2017 00:00:00 - 26/01/2017 00:00:00

1   Introduction

This report provides summary monitoring plots and figures from IASI instrument on the MetOp-B satellite retrieved from the IASI L0 and L1 ENG product (3 minute data packet) for 25/01/2017 00:00:00 - 26/01/2017 00:00:00 .

The monitoring data are extracted on PDU basis.

Data extraction, calibration, processing and statictics are performed at EUMETSAT.

2   Data quantity 25/01/2017 00:00:00 - 26/01/2017 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	477	-
L0 IASI PDUs	476	-
L1 ENG PDUs	476	-
L1 ENG distinct GEPSGranule	254	a
L1 DPX PDUs (RM: IASI-HIRS)	475	-
L1 DPS Files (RM: OBS-CAL NWP based)	475	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	12789	13469	20170125183859.821	20170125184200.141
PX1 (130)	11934	12606	20170125194759.924	20170125195100.026
PX1 (130)	13284	13956	20170125195359.912	20170125195700.017
PX1 (130)	7700	8372	20170125204159.904	20170125204500.005
PX1 (130)	9721	10401	20170125205059.817	20170125205400.137
PX2 (135)	12789	13469	20170125183859.821	20170125184200.141
PX2 (135)	11934	12606	20170125194759.924	20170125195100.026
PX2 (135)	13284	13956	20170125195359.912	20170125195700.017
PX2 (135)	7700	8372	20170125204159.904	20170125204500.005
PX2 (135)	9721	10401	20170125205059.817	20170125205400.137
PX3 (140)	12789	13469	20170125183859.821	20170125184200.141
PX3 (140)	11934	12606	20170125194759.924	20170125195100.026
PX3 (140)	13284	13956	20170125195359.912	20170125195700.017
PX3 (140)	7700	8372	20170125204159.904	20170125204500.005
PX3 (140)	9721	10401	20170125205059.817	20170125205400.137
PX4 (145)	12789	13469	20170125183859.821	20170125184200.141
PX4 (145)	11934	12606	20170125194759.924	20170125195100.026
PX4 (145)	13284	13956	20170125195359.912	20170125195700.017
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	7700	8372	20170125204159.904	20170125204500.005
PX4 (145)	9721	10401	20170125205059.817	20170125205400.137
IMG (150)	453	1221	20170125183859.821	20170125184200.141
IMG (150)	1666	2430	20170125194759.924	20170125195100.026
IMG (150)	3196	3960	20170125195359.912	20170125195700.017
IMG (150)	15436	16200	20170125204159.904	20170125204500.005
IMG (150)	1345	2113	20170125205059.817	20170125205400.137
VER (160)	9281	9392	20170125183857.876	20170125184201.872
VER (160)	11866	11982	20170125194753.870	20170125195105.862
VER (160)	12091	12207	20170125195353.857	20170125195705.853
VER (160)	13891	14007	20170125204153.849	20170125204505.845
VER (160)	14231	14342	20170125205057.872	20170125205401.868
AUX (180)	5107	5130	20170125183858.309	20170125184202.305
AUX (180)	5624	5648	20170125194754.303	20170125195106.295
AUX (180)	5669	5693	20170125195354.291	20170125195706.283
AUX (180)	6029	6053	20170125204154.283	20170125204506.275
AUX (180)	6097	6120	20170125205058.301	20170125205402.297

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
25/01/2017 00:00:07	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	476	-
L1 ENG PDUs	476	-
L1 ENG distinct GEPSGranule	254	a
GQisFlagQual set (PX1)	99.59 %	-
GQisFlagQual set (PX2)	99.66 %	-
GQisFlagQual set (PX3)	99.64 %	-
GQisFlagQual set (PX4)	99.59 %	-
GQisFlagQual set (all)	99.62 %	-

Table 4: Quality flags
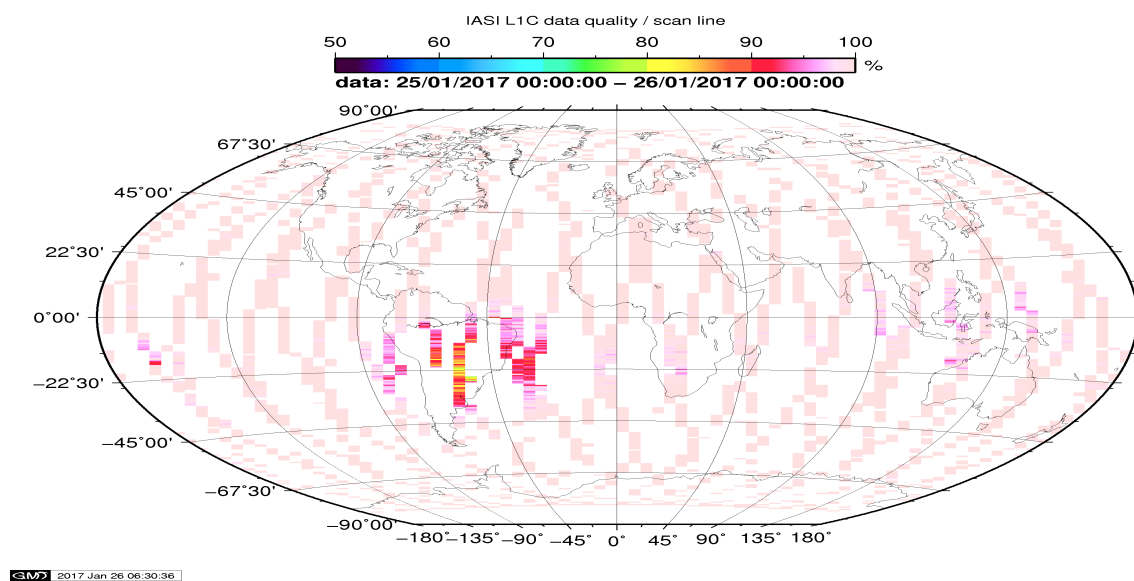
Figure 1: L1C data quality
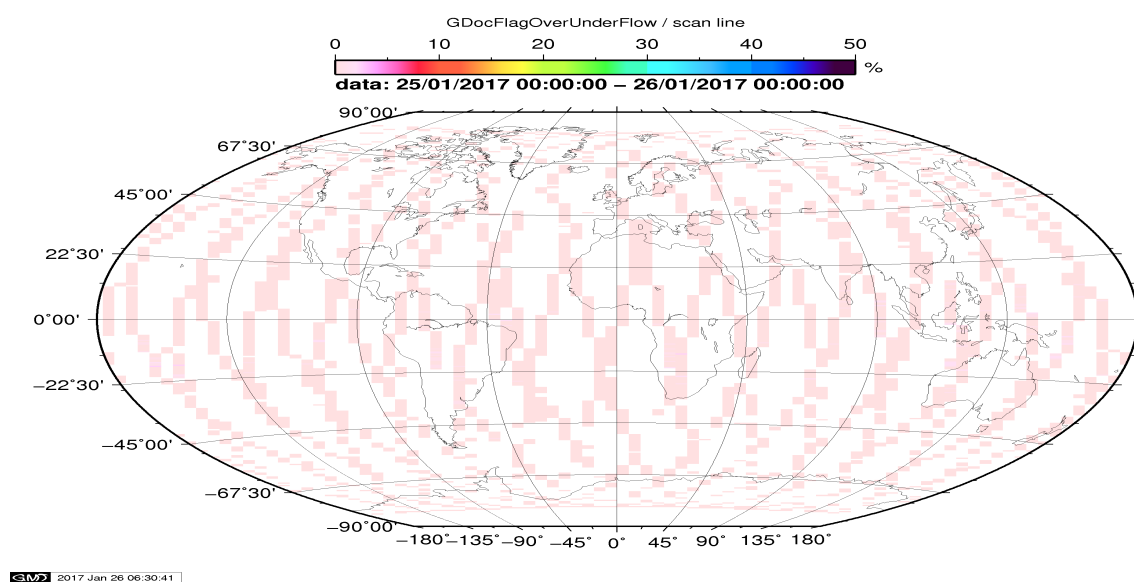
Figure 2: Flag of Over and Under Flows
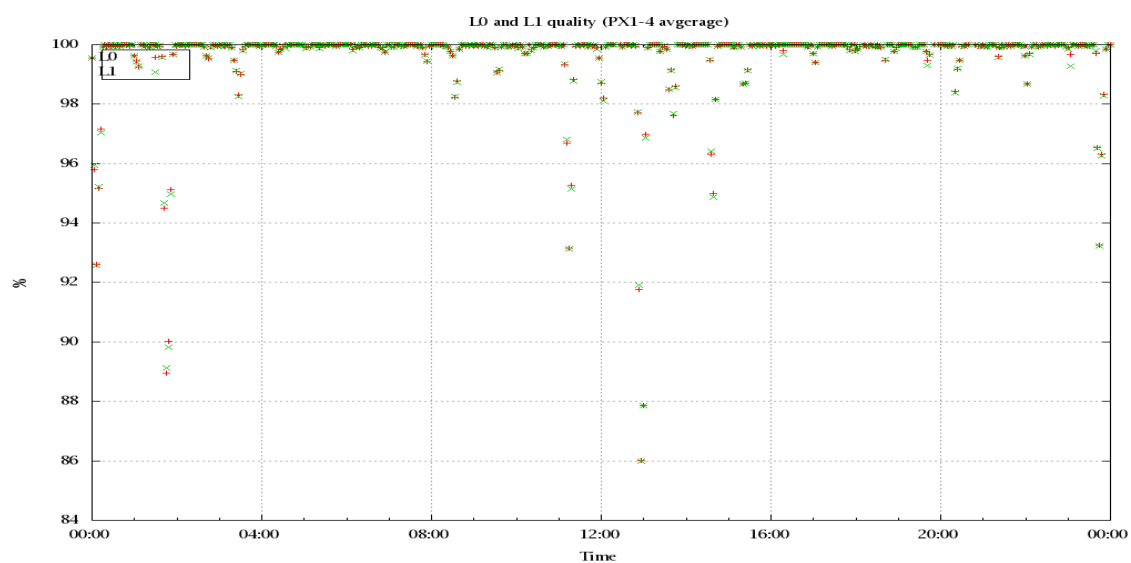
Figure 3: Level 0 and 1C overall quality
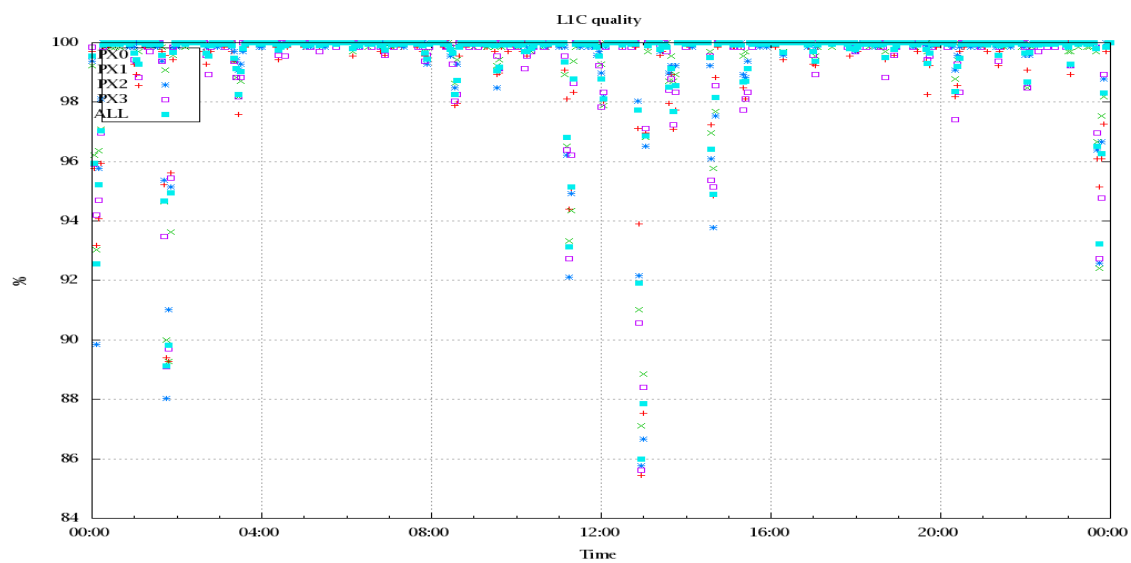
Figure 4: Level 1C quality
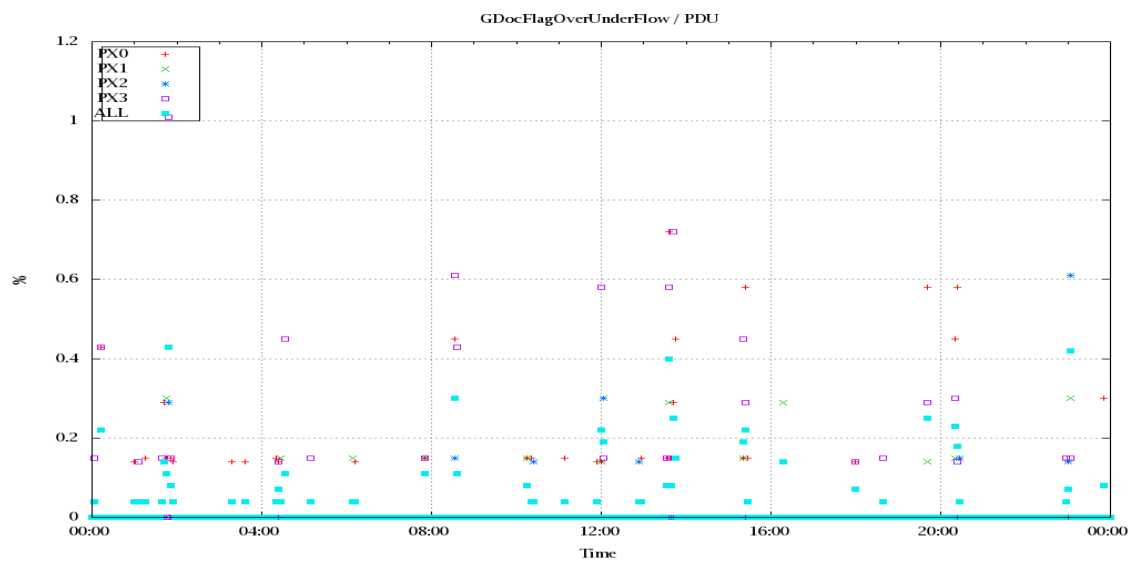
Figure 5: OverUnderFlowFlag timeseries

5   Radiance monitoring based on NWP

The radiance monitoring compares the IASI measurements (L1C-eps-products) obtained under clear sky situation over sea with modeled radiances. Cloud indentification is based on cloud flag of co-located AVHRR L1B data in addition to information from the IASI L1C clustering analysis here only homogenous situations are taken into account (99.0 percent in first class). A radiative transfer model (RTM) is feed with co-located ECMWF profiles of T,WV, and Ozon. Between March 2007 and the 18th of May 2010 RTIASI in Version 4.0 is used. After that date the RTTOV model in V9.3 is used.

Information about the SST is obtained from the AVHRR L1B or taken from AVHRR scenes analysis (CGS only). In the following figures 10 to 16 the so-called radiance anomaly is shown. The radiance anomaly is defined as the difference between the quarter daily radiance average OBS-CAL (over all pixel and scan position 10 to 20) and the average bias OBS-CAL (over all pixel and scan position 10 to 20) of the last 30 days.
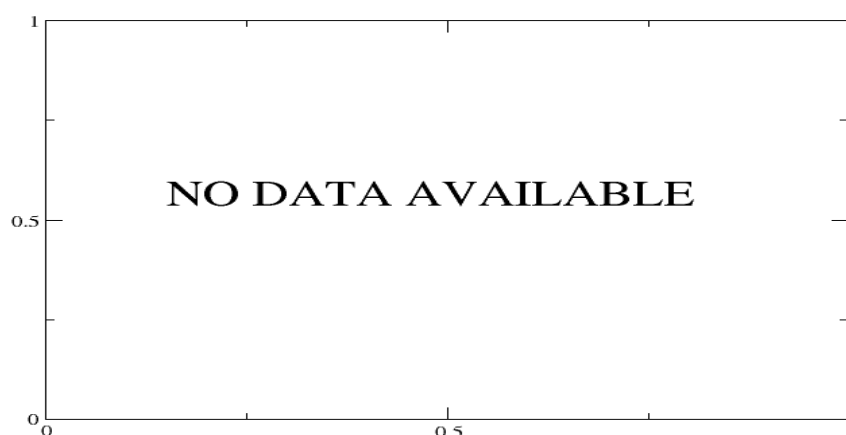

Figure 6: Average Radiance differences: OBS-CAL

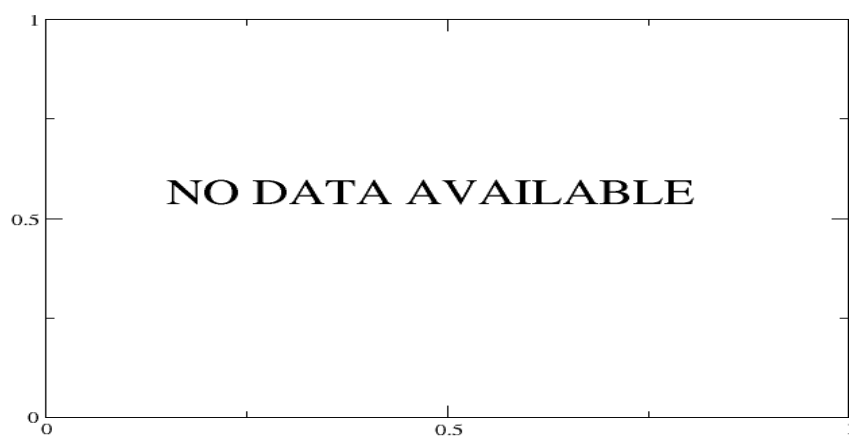Figure 7: Standard Deviation of Radiance differences

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NO DATA AVAILABLE

Figure 8: Average Radiance differences: OBS-CAL
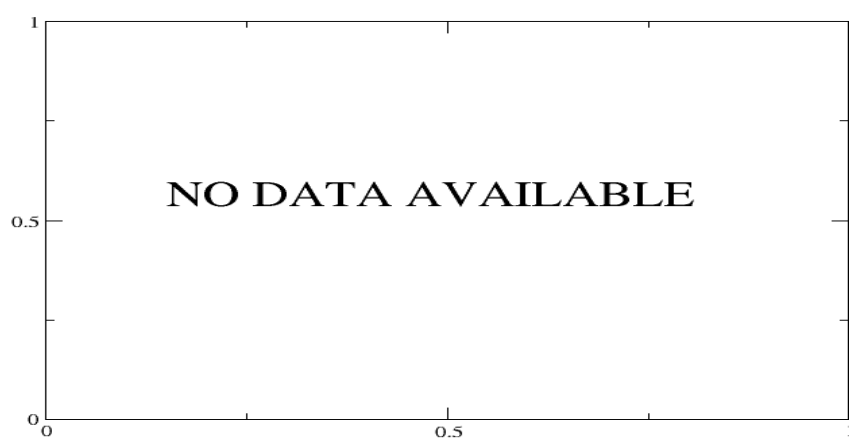
NO DATA AVAILABLE

Figure 9: Standard Deviation of Radiance differences
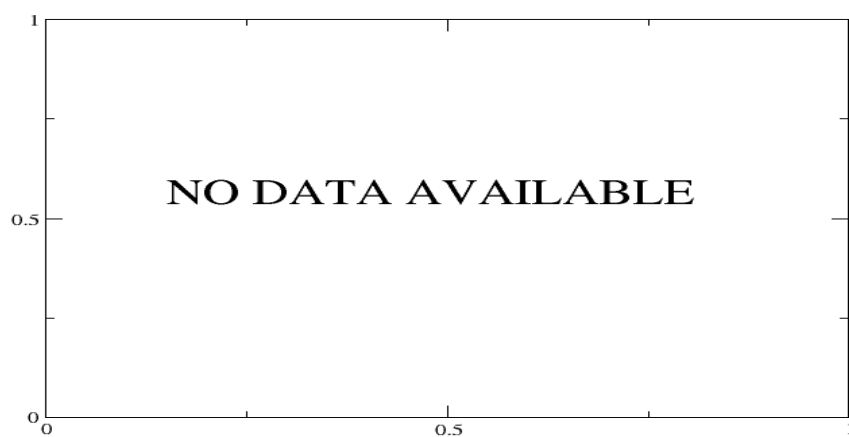
Figure 10: Radiance Anomaly in BRT: All Channels

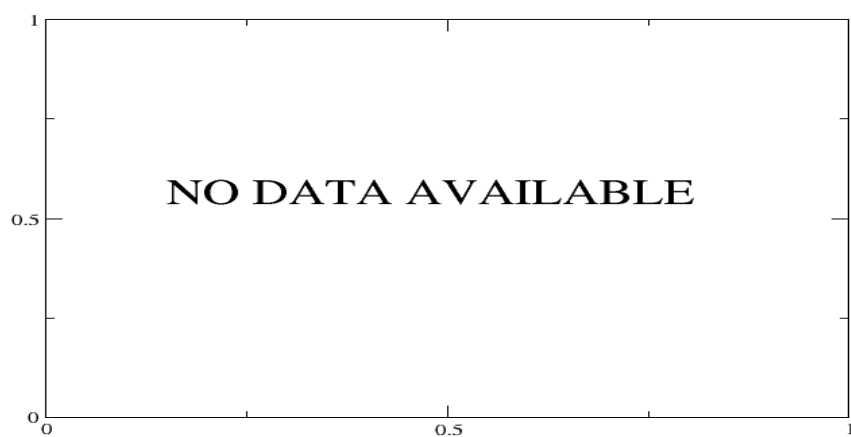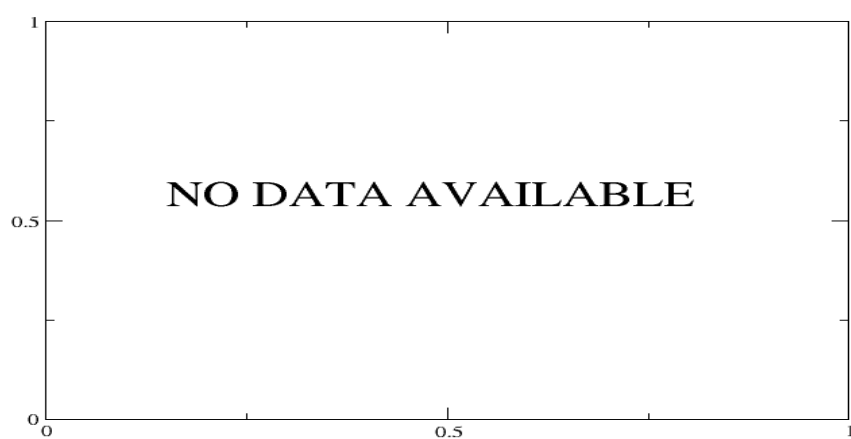Figure 11: Radiance Anomaly in BRT: IASI Band 1

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Figure 12: Radiance Anomaly in BRT: IASI Band 2

Figure 13: Radiance Anomaly in BRT: IASI Band 3
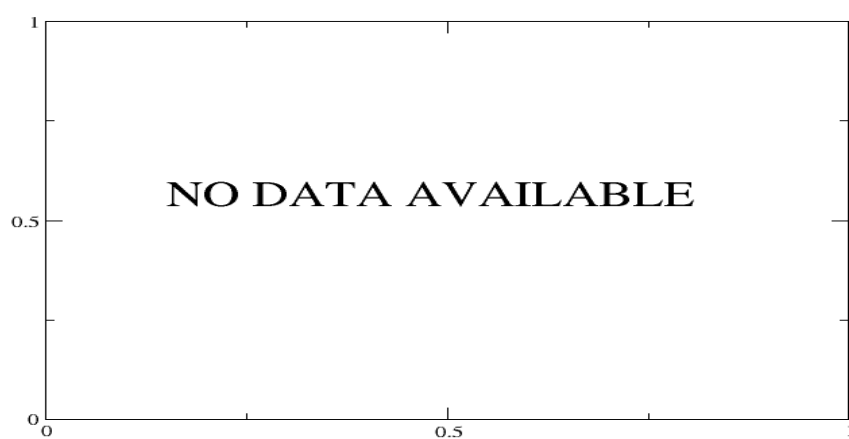
NO DATA AVAILABLE
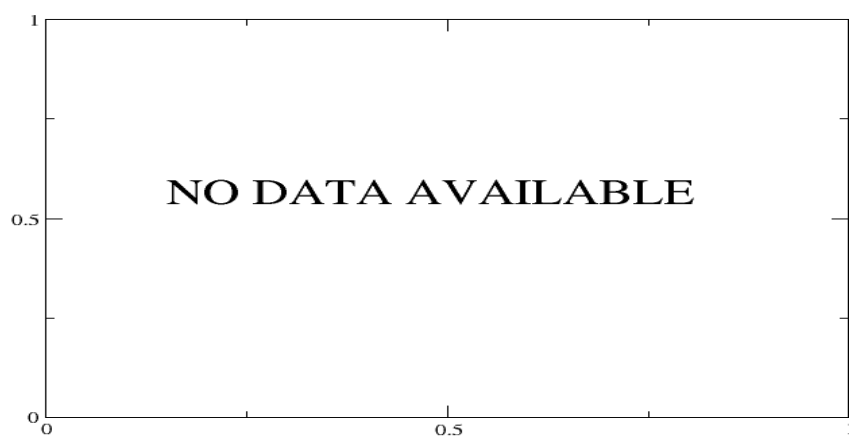
Figure 14: Radiance Anomaly in BRT: CO2 14

NO DATA AVAILABLE

Figure 15: Radiance Anomaly in BRT: CO2 4.3

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NO DATA AVAILABLE

Figure 16: Radiance Anomaly in BRT: O3

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6 IASI-HIRS radiance comparision Channel 1-19

The radiance comparision of IASI and HIRS/4 on-board MetOp is performed on all pixel with distances smaller than 3 km between IASI and HIRS. All sky conditions are covered. The radiance differences IASI - HIRS are given in brightness temperatures at 280K reference temperature. All conditions (clear, cloudy, day and night) are given in red in the following figures. The clear sky conditions at night are given in green and the clear sky cases during daylight are displayed in blue.
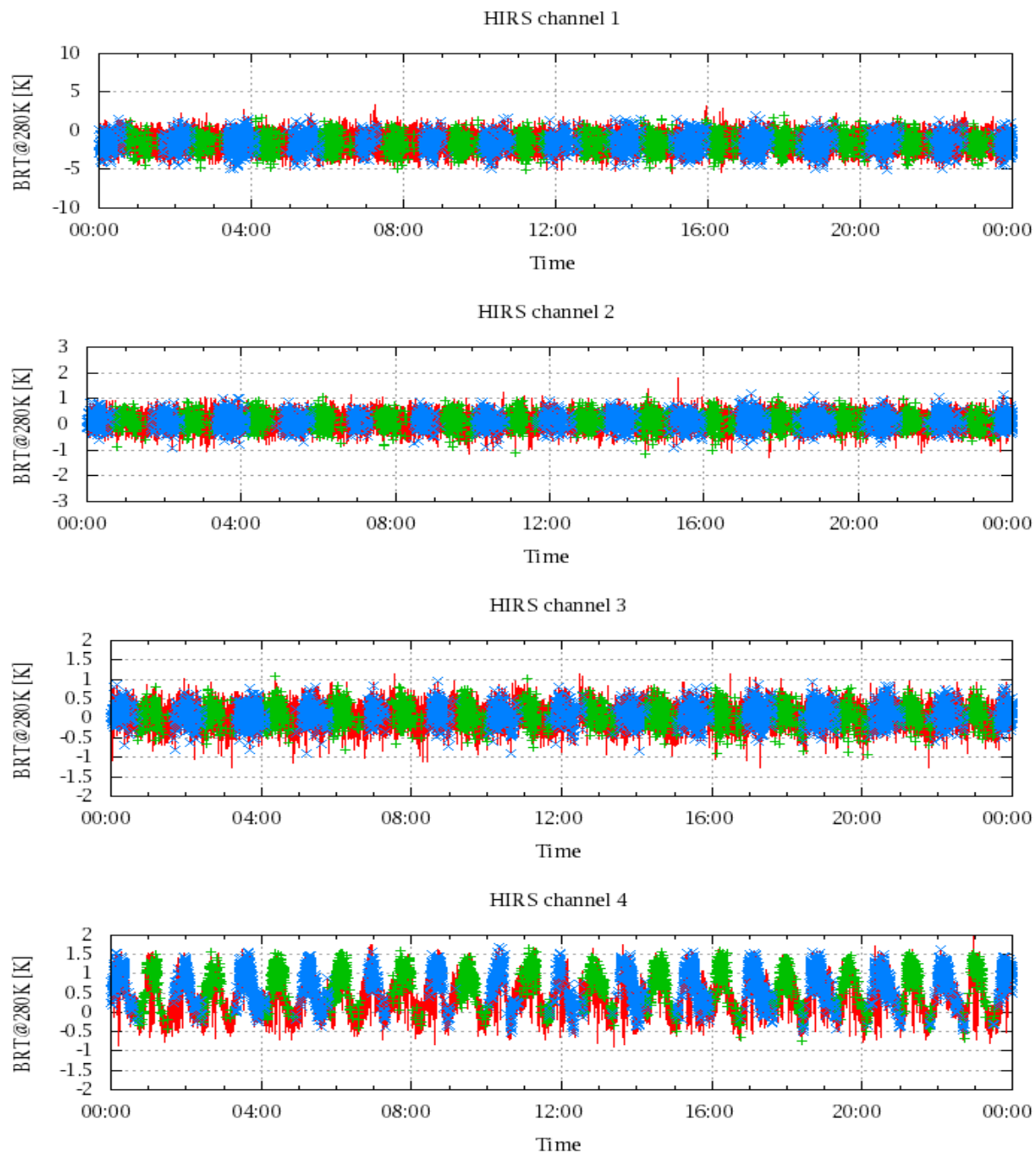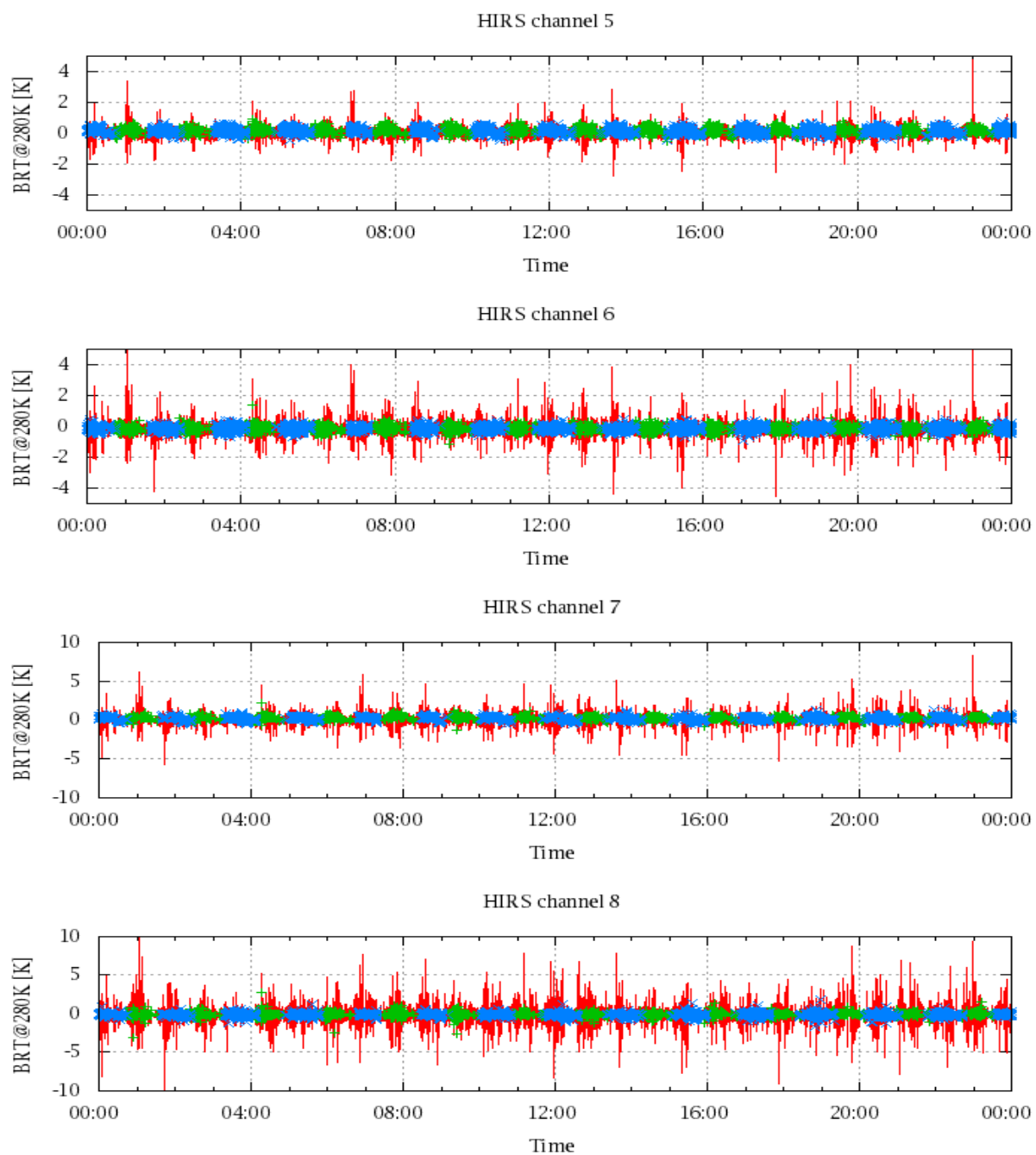

Figure 17: Radiance Differences in BRT
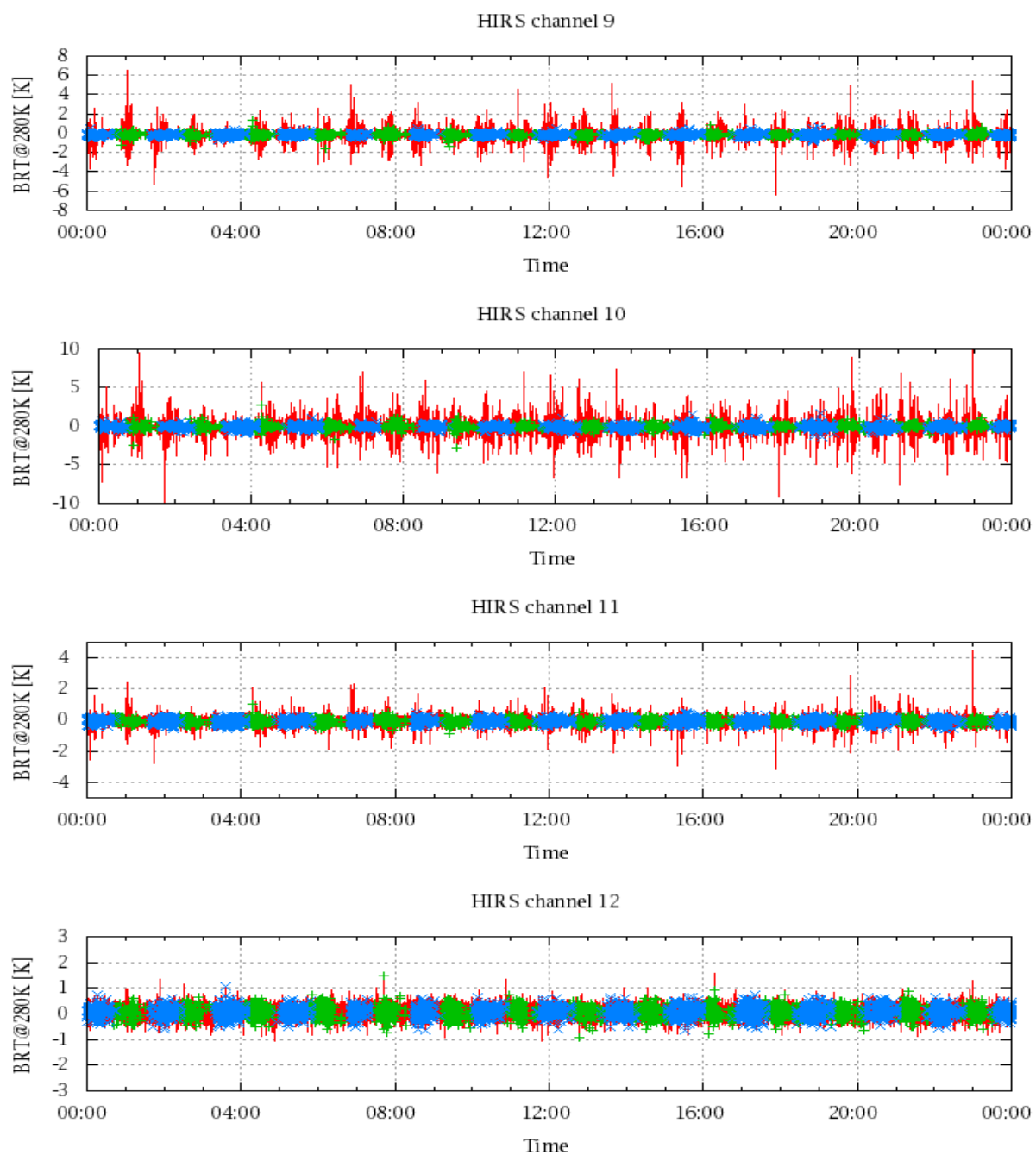
Figure 18: Radiance Differences in BRT

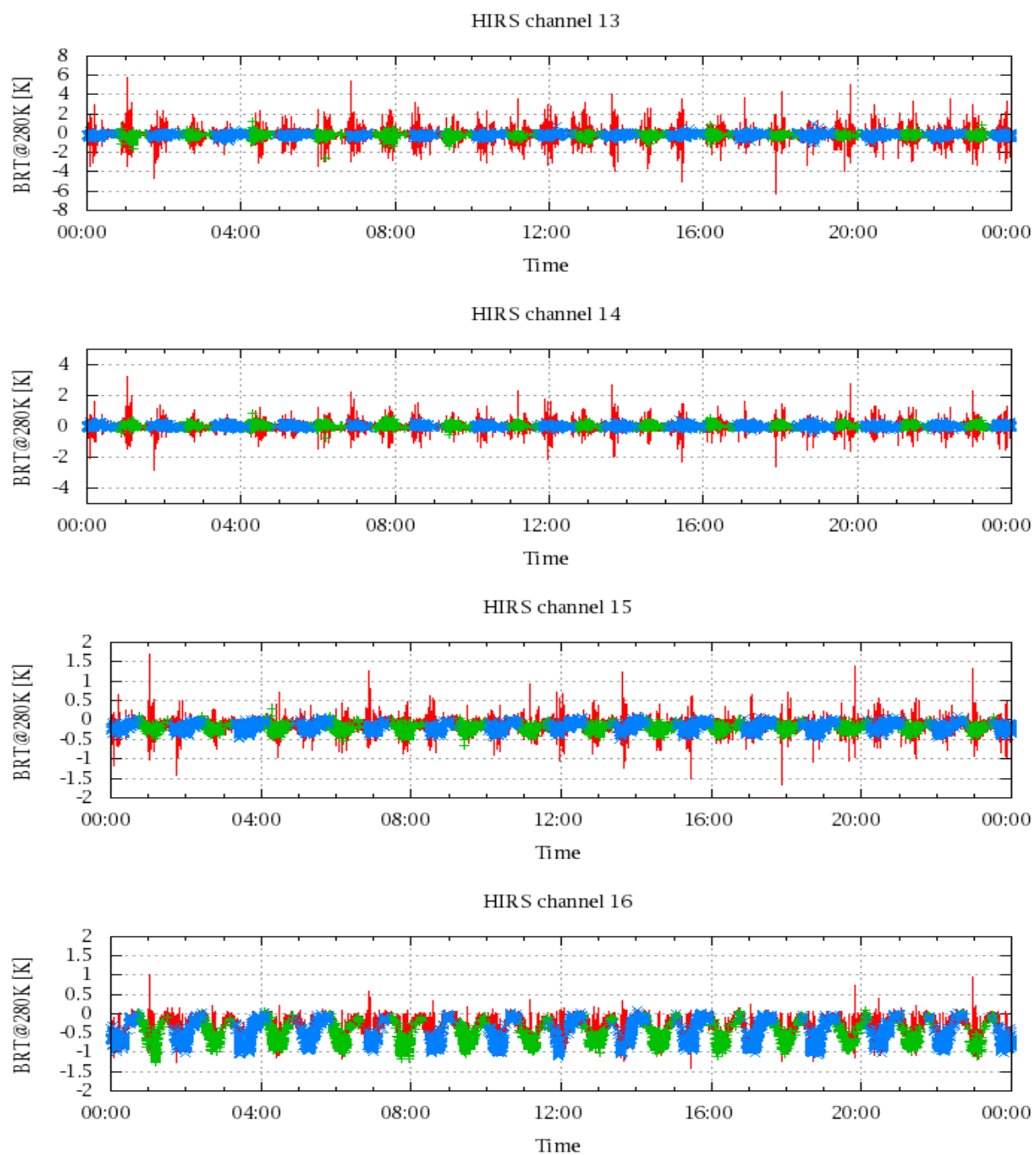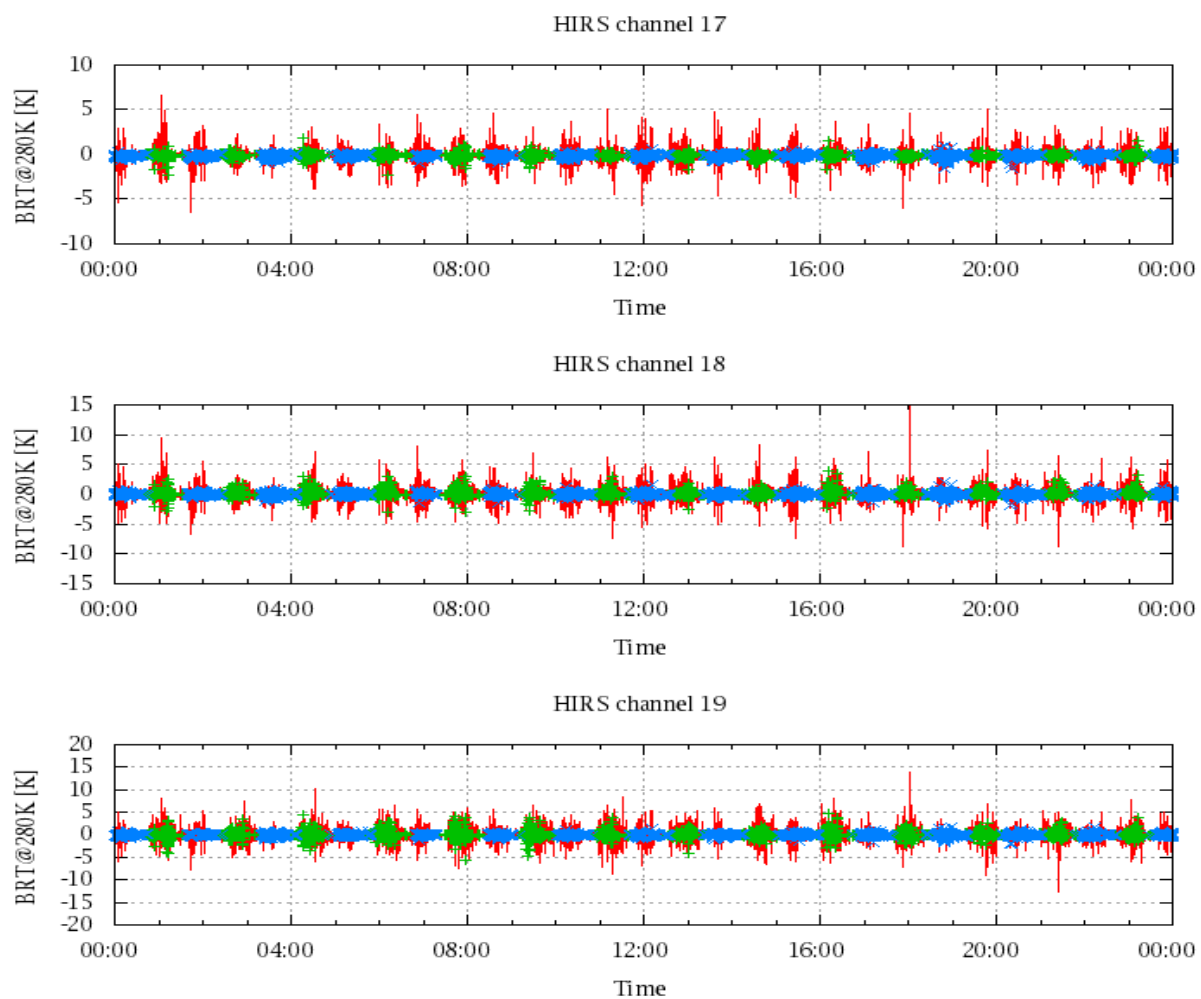Figure 19: Radiance Differences in BRT

Figure 20: Radiance Differences in BRT

Figure 21: Radinace Differences in BRT